



***MAVICKAR Environmental Engineering Consultants***  
Environmental Engineers & Planners

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Phone: 717-574-1618

April 22, 2021

Mr. Victor Landis, Regional Operations Section Chief  
Clean Water Program  
Department of Environmental Protection  
909 Elmerton Avenue  
Harrisburg, PA 17110-8200

**Re: Hanover Foods Corporation, Inc**  
**NPDES Permit No. PA 0044741**  
**PENN Township, York County**

Dear Mr. Landis:

Kindly accept this documentation, prepared by Mavickar Environmental Engineering Consultants (MEC). As the first bi-monthly report of our obligations, documented in the February 26, 2021 letter.

A review of the February and March influent/effluent data into and out of Lagoon 1, [attached spreadsheets] shows that Lagoon 1 continues to act as an aerobic biological reactor for the excess organic loadings, escaping digester treatment. With an increase in lagoon temperatures [77.54°F in February to 84.78°F in March], lagoon influent CBOD<sub>5</sub> remained fairly consistent, but effluent CBOD<sub>5</sub> went from 54.12 mg/l to 10.01 mg/l, an 81% reduction. Biological solids increased, however, .

As we mentioned earlier, excess biological solids in Lagoon 1, will carry-over to the Penn Township supplemental flow and potentially could enter Lagoon 2.

Actions to immediately and effectively address the increased flow and organic loadings are at present being focused in two areas: (1) Decrease the excess solids being generated in Lagoon 1 by consistently removing excess solids and providing additional effluent clarification; and (2) The Treatment efficiency of the Anaerobic Digester is not at an optimum level, due to the inability to achieve and maintain the required design temperature.

As previously noted, the short-term plan to achieve and maintain effluent quality, until we can increase digester treatment efficiencies, will be to enhance Lagoon 1's biological treatment capability, which based on the data, appear to have been achieved.

**MAVICKAR ENVIRONMENTAL ENGINEERING CONSULTANTS, LLC**  
Civil and Environmental Engineers, Hydrogeologists and Environmental Planners

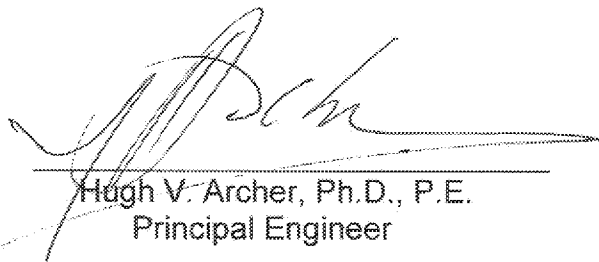
**Immediate Priority Objectives:**

1. Immediately begin a continuous emptying of the existing bagged solids and replacing them with empty solids drying bags, and removal of excess solids from Lagoon 1.  
This has already begun and is continuing at an increased rate based on land available for additional bags.
2. Immediately begin the process of identifying and implementing how best to take Lagoon 1's effluent back for additional clarification to the existing No 1 clarifiers.  
This has been accomplished, with approximately 0.2 MGD at present being returned for additional clarification. We are also looking at increasing this rate.
3. Commission an evaluation as to how best to increase [bring to design levels] Digester operating temperatures. If an alternative is found to be cost-effective, apply for DEP approval and implement.  
This has also been completed and we have received Hanover Food's Board approval and funding. We have been informed that there may have been a DEP WQM Part II that permitted heat transfer facilities. This may allow us to avoid a potentially time consuming PART II Permit amendment.

MEC remains committed to providing the Department with updates, every sixty days, of the three primary objectives shown above.

If you have any questions concerning the information presented above, please do not hesitate to contact us. We may be reached at (717) 574-1618.

Respectfully submitted,  
MAVICKAR ENVIRONMENTAL ENGINEERING CONSULTANTS



Hugh V. Archer, Ph.D., P.E.  
Principal Engineer

cc: DEP ... Maria Benbenek; ... Daniel Martin ... & Aaron Baar  
Hanover Foods ... Dave Stills ... Kumar Navile ... Eric Eckersley

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## LAGOON-1 Feb-21

Dater	DO East	DO South	DO West	DO North	Temp.	EFF TSS	EFF NH3	EFF PO4	EFF NO3	EFF pH	EFF ALK	EFF COD	EFF CBOD5	INF COD	INF CBOD5	INF TSS	INF PO4	INF NH3	INF Temp
1																			
2	13.1	13.1	13	13	33	67	15.1	7.9	0.426	8.29	850	192	14,784	850	65.5	49	1.4	8.6	78
3	13.3	13.2	13	13	32	77		8.4						880	52.4	90	3		82
4	13.4	13.4	13.1	13.1	30	77		8.1						3380	298.8	88	3.7		73
5	13.3	13.3	13.2	13.2	30	80		7.7						1420	109.3	170	5.8		75
6																			
7																			
8	13.2	13.3	14.7		34	56		6.8						1420	107.8	35	1.6		76
9	13.4	13.5	13.9		35	61	14.2	7.1	0.382	8.43	870	125	9,625	500	36.5	36	0.9	14.9	76
10	14.1	14	14.2		35	52		6.5						940	72.4	187	3.6		78
11	14	13.9	14.1		35	46		6.4						3670	282.6	77	2.6		78
12																			
13																			
14																			
15	14.5	14.5	14	14	36	49		6.1						200	15.4	105	1.9		75
16	15.2	14.6	13.9	13.4	36	49	13.5	6.3	0.365	8.5	860	93	7,461	1050	81.6	83	11.2	6.3	78
17	15.6	15.4	14.5	14.7	36	46		5.7						2040	157.1	73	2.5		77
18	14.3	14.2	13.2	13.3	35	51		5						650	48.5	144	5.46		77
19																			
20																			
21																			
22	14.5	14	13.8	13.3	35	63		5.78						2030	156.3	167	5.41		75
23	14.7	14.1	13.6	13.7	35	57	13.3	4.93	0.427	8.51	840	110	8,47	6500	500.5	65	2.03	6.5	75
24	12.6	12.1	11.5	11.5	41	56		4.98						3380	260.3	177	5		80
25	9.4	9.2	8.2	8.8	46	83		5.05						870	67.5	203	5.58		80
26	0.7	1.3	1.5	0.4	49	112		5.06						450	34.7	140	4.49		78
27																			
28																			
29																			
30																			
31																			
AVERAGES	12.92	12.77	12.55	11.46	35.94	65.44	18.53	6.35	0.40	8.48	855.00	130.00	10,011	1794.12	138.15	108.88	3.89	8.08	77.53

[CBOD5 = 7.7% of COD]

[Surface Area = 1.5 Acres - Volume = 7.5 MG.]

Note: All values are mg/l, except temperatures, which are degrees Fahrenheit.

## LAGOON -1

Mar-21

Date:	DO East	DO South	DO West	DO North	Temp.	EFF TSS	EFF NH3	EFF PO4	EFF NO3	EFF pH	EFF AIR	EFF COD	EFF CBOD5	INF COD	INF CBOD5	INF TSS	INF PO4	INF NH3	INF Temp
1	0.5	0.4	0.2	0.3	51	204		6.29						1698	130.7	86	1.3		79
2	0.4	0.6	0.2	0.2	51	220	4.7	4.99	0.25	8	780	678	52.206	1495	118.2	38	0.57	13.8	77
3																			
4																			
5																			
6																			
7																			
8																			
9	1	2.3	1.5	0.3	54	837	1.1	4.4	0.231	8.31	850	611	47.047	1410	108.5	58	1.8	50.7	80
10	1	2.4	2.1	0.3	56	628		4.9						1285	97.4	44	1.4		80
11	1.7	2.2	3.1	0.2	59	690		4.5						1269	97.7	43	0.9		82
12	0.4	0.2	1.5	0.2	62	610		4.5						1405	108.2	37	1.3		95
13																			
14																			
15	0.8	2.1	2.5	0.1	55	524		4						1949	150.1	91	3.2		85
16	0.5	1.2	1.5	0.1	56	643	1.2	4.1	0.212	8.26	880	620	47.74	1149	88.5	64	2.2	28.3	85
17	0.5	1.5	1.2	0.2	57	584		3.7						1832	143.4	67	7.5		86
18	0.2	1	1.1	0.2	59	708		4						1660	127.8	72	2.9		87
19																			
20																			
21																			
22	7.8	8.1	7.7	0.3	55	692		4.1						1922	148.0	95	2.6		84
23	0.8	1.3	1.8	0.2	58	724	0.2	4.2	0.194	8.17	940	732	56.364	1951	150.2	80	2.5	35.4	89
24	0.3	0.8	0.7	0.2	62	733		3.9						1957	150.7	74	2.7		88
25	0.2	0.2	0.2	0.1	64	732		4.6						1954	150.5	64	2.3		90
26	0.2	0.1	0.1	0.1	67	691		4.5						1964	151.2	57	1.9		89
27																			
28																			
29	0.5	1.3	2.7	0.1	62	674		4.5						1969	151.6	53	5.8		84
30	0.1	0.2	0.2	0.1	63	659	5.7	4.2	0.303	8.15	1110	873	57.271	1960	150.9	118	5.1	71.6	88
31	0.2	0.2	0.2	0.2	64	653		4.9						2002	154.2	135	4.6		93
AVERAGES	0.94	1.48	1.38	0.19	56.61	674.98	3.28	4.35	0.24	8.18	914.60	702.80	56.12	1713.44	134.84	68.67	2.54	38.88	84.78

Note: All values are mg/l, except temperatures, which are degrees Fahrenheit.

[Surface Area = 1.5 Acres - Volume = 7.5 MG.]

[BOD5 = 7.7% of COD]